THE NIGHT SKY

Scan to review worksheet

Expemo code:
17QV-D4LE-4GX1

1 Warm up

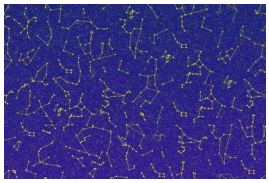
1. Compare these two photos - what activity do they both relate to? What different aspects of this activity does each photo show?


2. Do/would you enjoy this activity? Why/not?
3. How easy is it to do this activity where you live?

2 Vocabulary 1

You are going to read an article about the night sky. First, match these words with the pictures.

1. constellations
2. a galaxy
3. an observatory
4. the solar system
5. a telescope
6. a cloud of dust and gas (a nebula)

A. 
B. 
C. 
D. 
E. 
F. 

3 Read for main idea

Read the article, "How to see stars and tackle light pollution in your own backyard." Then choose the best summary of the whole article from the options below.

1. Understanding space and the universe is a life-changing event for most people. How many stars there are, how far away they are and how they are formed is something everyone needs to know.
2. People benefit from being able to see the night sky but finding a place that's dark enough can be difficult. It's interesting to see the moon, planets and stars.
3. Children should visit national parks with their schools to learn about the night sky so that they can use the stars to tell the time and find their way if they get lost.

4 Vocabulary 2

Find the words in bold in the article with these meanings. Write the words next to their definitions.

1. far away from where most people live = _____
2. ideas that are complicated and important = _____
3. less bright, harder to see = _____
4. a positive feeling of surprise that you get when you see something new and strange = _____
5. a regular way in which something happens = _____
6. show how something works to improve someone's understanding = _____
7. when two things happen at the same time by chance, but without any relationship between them = _____

5 Read for detail

Find the answers to these questions in the article. Underline the information but be ready to remember the answers and explain them in your own words.

1. Why are observatories usually built far away from cities?
2. Who has made it possible for people in towns and cities to see the night sky more easily?
3. How can you make the night sky easier to observe if you're at home?
4. When does the moon show changes in the way it looks?
5. Where can you see the formation of new stars?

THE CONVERSATION

How to see stars and tackle light pollution in your own backyard

November 8, 2019

Dark sky sites

To fully enjoy the **wonders** of space, with or without a telescope, we need dark skies. That's why observatories are usually built in **remote** locations, where there's less light pollution.

The UK government has recommended that every child should have the chance to spend a night under the stars in special dark sky sites in national parks. There they can explore the **concepts** of time and space that the universe can **demonstrate**.

The Milky Way galaxy

Exploring the night sky could be a life-changing experience for people of all ages. They might see our own Milky Way galaxy for the first time. Learning that this is made up of millions of stars, each similar to our sun, gives us a new appreciation of the universe and our place in it.

Light pollution

But protecting dark sky sites is only half the story. It's a shame that light pollution means these wonderful experiences are only possible far from home. It should be possible for people to connect with the wonders of the universe in the places where they live.

In the UK, astronomy and environmental groups have developed dark sky discovery sites in towns and cities. City parks are often perfect for this if the lighting can be reduced or covered.

At home, there are many things that people can do to see more of the night sky, like finding a place away from direct streetlight or switching off outdoor security lights. Turning off all the lights in the house can also make a big difference.

What we can see

Planets such as Jupiter, Saturn and Venus, the brightest objects in the solar system, are easily visible in cities. If you limit light pollution near your home, you can see more stars and even some of the brightest constellations. It's possible to find and follow these objects from night to night and understand the **pattern** of their movements.

The super moon

Noticing how the moon changes shape and colour while rising, setting and moving through the sky from night to night is an experience to remember. The regular interest around super moons suggest that people are keen to rediscover the nightly pleasure of tracking the moon.

The Plough

On a clear night, it's nearly always possible to find constellations like the Plough. The two stars at its back - known as the pointer stars - can also help people locate the Pole Star, which gives the direction of north. But, it's interesting to remember that this is only a **coincidence**. Over thousands of years, changes in the way the Earth turns mean that many different stars have been, and will be, the new Pole Star.

You can even tell the time using the position of the pointer stars in the Plough, as if the whole constellation were a giant clock with the Pole Star at the centre.

Spotting Orion (the hunter) is also simple if you look for his belt - three bright stars in a line. Below the belt there are three much **fainter** stars forming the sword. The object at the middle of this is not a star, but the Orion Nebula - a cloud of dust and gas where new stars are forming.

Conclusion

Local action on light pollution - at home or in parks - might seem like a small thing, but the results can be impressive. This could broaden the appeal of the night sky to people who've never tried it before. Allowing children and their families to experience the beauty of space in their own neighbourhood could connect them to the stars for life.

Adapted from TheConversation.com, by Daniel Brown, Lecturer in Astronomy, Nottingham Trent University

6 Language in context

Read phrases A-D from the text and decide which phrase:

1. expresses a negative feeling _____
2. means to be very excited _____
3. means make something more attractive or popular _____
4. means helps us understand the importance _____

a. Learning that this is made up of millions of stars, each similar to our sun, **gives us a new appreciation** of the universe and our place in it.

b. **It's a shame** that light pollution means these wonderful experiences are only possible far from home.

c. The regular interest around super moons suggest that people **are keen** to rediscover the nightly pleasure of tracking the moon.

d. This could **broaden the appeal** of the night sky to people who've never tried it before.

Underline the word that immediately follows each expression in bold and notice the grammar of the phrase that follows.

Complete these sentences accurately with the correct next word and your own ideas. Then compare and check your sentences in pairs.

- Watching nature documentaries has given me a new appreciation .....
- At my school/work, it's a shame .....
- There are many sports I've never tried. I am keen .....
- A higher salary would really broaden the appeal .....

7 Discuss

Discuss any or all of the questions in pairs or small groups. Speak in full sentences and use language from the lesson.

1. What feelings do you have when you look at the night sky?
2. How have stars and the night sky been important to people in the past?
3. How can technology help in learning more about the night sky?
4. What benefits do we get from the study of space?
5. Are you a fan of science fiction set in space? Why/not?

Key

1. Warm up

10 mins. This stage introduces the topic and personalises it for students. Working with the whole class, discuss the photos and support students to consider similarities and differences - this task is similar to the picture description task on Cambridge speaking exams. If students already know the words "observatory" and "telescope," these would be appropriate in their answers, but if not, these words will be taught in the next exercise. Then go over the two questions with the whole class - this is a good opportunity to talk about "light pollution" as a problem with seeing the night sky, and also, if relevant in your area and at the time of teaching, how the worldwide reduction in light and air pollution during the coronavirus restrictions has meant that people have been able to enjoy the night sky more than before.

1. Both photos relate to watching the sky at night. The first photo shows a place that is used for scientific observations of space which may result in new discoveries. There is no need for direct human observations - everything is controlled by computer. The second photo shows a family who are enjoying the night sky using binoculars. They are identifying stars and planets that are already known.
2. (students' own answers)
3. Students may say that looking at the night sky is often difficult because there is too much "light pollution" for people to see many features. They may also mention lack of equipment or knowledge/training.

2. Vocabulary 1

5 mins. In this stage, students will define some specialist vocabulary that they will encounter in the article. Go over the words and drill pronunciation of words in bold - the stressed syllable is underlined. Then give students a few minutes to match the words and pictures. When you check answers, prompt students with the picture letter: "What's A?" and get students to say the key words as a final check on pronunciation. You could ask students if they know the names of any planets, galaxies or constellations in English. This could help them predict some of the article content, but it's fine if they don't know any.

1. F 2. D 3. A 4. C 5. B 6. E

3. Read for main idea

7 mins. In this stage students skim the full text of the article with the aim of identifying main content points and understanding how the text is organised. The task of choosing a summary allows them to demonstrate this basic understanding. Explain the task and then set a time limit of 3 minutes for students to skim the article. Remind them not to worry about any words they don't know at this stage. They could check answers quickly in pairs before you check with the class.

ANSWERS: the best summary of the text is 2. The other two summaries include information from the article, but these are minor points, not the main idea of the whole text.

4. Vocabulary 2

8 mins. In this stage, students will define some more general vocabulary from the article. Go over the text and drill pronunciation of words in bold - the stressed syllable is underlined. Then give students a few minutes to find the definition and write the words in. When you check answers, read the definition and get students to say the key words as a final check on pronunciation. All of these words will be an appropriate addition to the active vocabulary of students at this level.

1. remote 2. concepts 3. fainter 4. wonder 5. pattern 6. demonstrate 7. coincidence

5. Read for detail

10 mins. In this stage students read the text intensively to find and recover detailed meaning. Go over the questions and then give students a few minutes, in pairs, to locate, underline and discuss the answers. The questions are in the same order as the answers appear in the text. When you check answers, students should cover the text and use their own words. This is challenging for students at this level but will be more achievable if they work in pairs initially to rehearse their answers. Support students to give accurate answers both in terms of information and of grammar, vocabulary and pronunciation.

1. Because they need dark skies, away from the light pollution of cities, to see the sky clearly.
2. Astronomy and environmental groups have worked together to make dark sky sites in towns and cities, including in parks.
3. You can keep away from streetlights and switch off outdoor security lights and indoor house lights.
4. When it rises, sets and moves through the sky from night to night.
5. In the nebula at the centre of the sword in the Orion constellation.

6. Language in context

10 mins. In this stage, students can notice and explore multi-word expressions that will be appropriate additions to their active vocabulary at this stage. Go over the expressions and drill the pronunciation of the phrases in bold. Then give students a few minutes to match each phrase with its meaning. As or after you check answers, get students to underline the words that immediately follow each phrase and check that they have noticed the grammar patterns (indicated in the answers), so they will be able to use the target language accurately in sentence contexts. Students complete the four sentences with the next word plus their own ideas, paying special attention to the grammar patterns. Demonstrate with the first sentence, eliciting that the next word is "of" and then that students must finish the sentence with their own ideas. If students ask, it is also possible "to be keen on something".

1. B that (+ clause - subject + verb)
2. C to (infinitive)
3. D of (+ something, to someone)
4. A of (+ something)

7. Discuss

10 mins. In this stage, students can respond to some of the ideas raised in the article. This task provides some practice with the sort of discussion questions which appear on Cambridge or IELTS exams. Encourage students to give full answers including their opinions, reasons and examples and to use language from the lesson. Monitor students to support them as necessary and offer some brief error correction at the end.

Variation: if your class setup allows, students could stand up and mingle to discuss the questions, finding new partners for each question.

Sample answers:

1. Wonder, feeling small and insignificant, curious;
2. For keeping track of seasons and time, and for navigation (finding north), also for religious reasons
3. There are apps that you can download onto your phone to identify constellations.
4. Understanding of origins of the solar system, search for extra-terrestrial life, appreciation of the uniqueness of the Earth and its fragile systems.
5. (students' own answers) - encourage them to reference and evaluate popular films, TV shows and books.